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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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09/770,788

01/26/2001

Louis L. Hsu

728-194
(YOR9-2000-0858)

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7590

12/04/2002

Paul J. Farrell, Esq.
Dilworth & Barrese, LLP
333 Earle Ovington Blvd.
Uniondale, NY 11553

EXAMINER

NGUYEN, DAO H

ART UNIT

PAPER NUMBER

2818

DATE MAILED: 12/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/770,788

Applicant(s)

HSU ET AL.

Examiner

Dao H Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 43-55 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 43-55 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 September 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

1. In response to the communications dated 09/24/2002, claims 43-55 are active in this application as a result of the cancellation of claims 56-65

Claim Rejections - 35 U.S.C. § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 43-47, 54 and 55 are rejected under 35 U.S.C. 103 (a) as being unpatentable over U.S. Patent No. 6,229,161 to Nemati et al. in view of Takeguchi, U.S. Patent No. 5,619,450, or over U.S. Patent Application No. 2002/0093030 by Hsu et al. in view of the following remarks.

Regarding to claim 43, Nemati et al. discloses a memory system as shown in figures 1-3, 6-8, comprising a plurality of T-RAM cells arranged in an array (see column 2, lines 29-65), each of the plurality of T-RAM cells comprising a thyristor portion 10, and a transfer portion 12 (fig. 1).

Nemati et al. does not teach that the thyristor portion having two halo regions having different polarities.

Takeguchi discloses a memory system as shown in figure 3 having two halo regions of N-type and a P-type polarities. It would be obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Nemati et al. so that it would have two halo regions as that of Takeguchi in order to retain information in the memory cell. See column 2, line 26 to column 3, line 39.

Likewise, Hsu et al. discloses a T-RAM array comprising a plurality of T-RAM cells wherein each cell having a thyristor portion having two halo regions (see figures). Though the halo regions of Hsu et al. have the same polarity, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify the halo regions of Hsu et al. so that they would have different polarities, since applicant has not disclosed that such halo regions with different polarities solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with halo region having similar polarities.

Regarding to claims 44, and 45, Nemati et al. in view of Takeguchi (or Hsu et al. in view of the above remarks) disclose the memory system wherein each of the plurality of T-RAM cells further comprises a transfer gate portion 12 (fig. 1 of Nemati et al.) (or figures of Hsu et al.) and the gate portion comprises a halo region of a single polarity.

Regarding to claim 46, Nemati et al. in view of Takeguchi disclose all the claimed limitations, except for the single polarity halo region of the transfer gate being fabricated in the same steps as one of the halo regions of the thyristor portion. It would have been

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obvious to one of ordinary skill in the art that all of the halo regions could be fabricated at the same step or at different steps, and this obviously does not affect the performance of the system

Regarding to claim 47, Nemati et al. in view of Takeguchi (or Hsu et al. in view of the above remarks) disclose the memory system, wherein the plurality of T-RAM cells have a planar cell structure. See column 6, lines 6-28 of Nemati et al., or see the abstract of Hsu et al.

4. Claims 48-53 are rejected under 35 U.S.C. 103 (a) as being unpatentable over U.S. Patent No. 6,229,161 to Nemati et al. in view of Takeguchi, U.S. Patent No. 5,619,450, or over U.S. Patent Application No. 2002/0093030 by Hsu et al., and further in view of Kuriyama, U.S. patent 5,945,715.

Regarding to claim 48, Nemati et al. in view of Takeguchi (or Hsu et al. in view of the above remarks) disclose the memory system comprising all the claimed limitations. Except for the T-RAM cells have at least a support device associated therewith.

Kuriyama discloses peripheral devices or peripheral circuitry, as shown in Kuriyama's figures 1-34, connected to, or interconnected with, an array of memory cell part, or an SRAM, wherein each of the cells is fabricated by simultaneously fabricating a first portion of the cells and the first devices, and simultaneously fabricating a second portion of the cells and the second devices. It would have been obvious to one of

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ordinary skill in the art at the time the invention was made that in order to use the array of T-RAM cells, the T-RAM Cells system of Nemati et al. in view of Takeguchi (or Hsu et al.) must be connected to a peripheral devices or circuitry, and the devices like that of Kuriyama is certainly can be used.

Regarding to claim 49, Nemati et al. in view of Takeguchi (or Hsu et al.) and further in view of Kuriyama disclose all the claimed limitations, except for the support device being fabricated simultaneously with the fabrication steps of the T-RAM cells. It would have been obvious to one having ordinary skill in the art that the device and the T-RAM cells could be fabricated at either the same or different steps, and this absolutely does not affect the performance of the system.

Regarding to claims 50 and 51, Nemati et al. in view of Takeguchi (or Hsu et al.) and further in view of Kuriyama disclose the memory system wherein each of the plurality of T-ORAM cells has a first support device being a p-MOS and a second support device being an n-MOS. See figure 1 of Kuriyama.

Regarding to claim 52, Nemati et al. in view of Takeguchi (or Hsu et al.) and further in view of Kuriyama disclose the system wherein the p-MOS support device comprises an n-type halo region and the n-MOS support device comprises a p-type halo region. See figure 1 of Kuriyama.

The rejection of claim 53 is made similar to those of claims 46, 49.

Regarding to claims 54 and 55, Nemati et al. in view of Takeguchi (or Hsu et al.) and further in view of Kuriyama disclose all the claimed limitations.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dao H. Nguyen whose telephone number is (703) 305-1957. The examiner can normally be reached on Monday-Friday, 9:00 AM – 6:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's

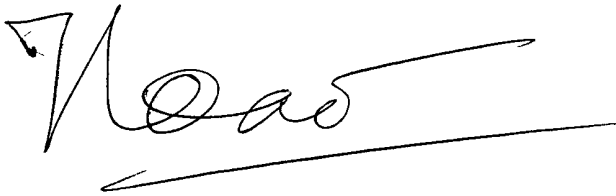
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supervisor, David Nelms can be reached on (703) 308 - 4910. The fax numbers for Customer Service is (703) 872-9317, for the organization where this application proceeding is assigned is (703) 872-9318 for regular (Before Final) communications or (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

A handwritten signature in dark ink, appearing to read 'Dao H. Nguyen', with a long horizontal stroke extending to the right.

Dao H. Nguyen
Art Unit 2818
November 20, 2002

A handwritten signature in dark ink, appearing to read 'HOAI HO', with a checkmark-like flourish at the end.

HOAI HO
PRIMARY EXAMINER